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A LIST OF THE NEW GREGARINES DESCRIBED FROM
1911 TO 1920*

By
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Although the gregarines are among the oldest known of the Protozoa (Redi, 1684), they still remained a practically unknown group for a hundred and fifty years, researches on more recently described groups far outnumbering those on these parasites. This may have been due to the fact that gregarines are of little or no economic importance. The hosts as a rule are not animals of such import that the elimination of their parasites is desirable and, moreover, the parasites themselves are generally harmless, living commensal rather than actual parasitic lives within their hosts.

Because this is practically a new field, much of the work on the group has been up to the present chiefly systematic; it is often easier to find an entirely new species than to obtain a species already known. Considerable has been done on Life Histories, Effect of the Parasite Upon the Host, and Chromosome Behavior in the Complete Life-Cycle during the last decade and much more is to be expected in these fields.

Labbé described the gregarines known up to the year 1899¹ and reclassified many of the wrongly designated and aberrant species. His paper was probably the incentive for much of the subsequent work on the group. The new forms described from the time of Labbé's Summary up to the year 1911 were listed by Sokolow² and those described in this decade compared favorably with the complete summary of Labbé.

Because the number of new species has been rapidly increasing subsequent to Sokolow's List, the writer has prepared a list of the species described in the literature from 1911 to the beginning of the year 1920. During this decade were named many new genera and the genus *Gregarina* received many new species.

Perhaps the most important researches of the decade were those in the Suborder Schizogregarinae which includes many aberrant and apparently unrelated species and consequently the classification is considerably confused.

The classification which follows is that of Minchin, at present the best known.

* Contribution from the Zoological Laboratory of the University of Illinois, No. 204.

¹Das Tierreich, Pt. 5, Sporozoa.

²Zool. Anz. 38:277-95; 304-14.

Class Sporozoa Leuckart

Subclass 1. Telosporidia Schaudinn 1900. Sporulation at end of vegetative period.

Order 1. Gregarinoidea Minchin 1912. Trophozoite parasitic in epithelial cells. Sporont free in a cavity. Spore forms a single zygote.

Suborder 1. Eugregarinae Léger 1900. Reproduction by sporogony only.

Tribe 1. Cephalina Delage and Hérouard 1896. With epimerite in trophozoite stage. Septate in all but one family. Generally parasitic in digestive tract of insects.

Tribe 2. Acephalina Delage and Hérouard 1896. Without epimerite, non-septate. Generally coelomic.

Suborder 2. Schizogregarinae Léger 1900. Reproduction by both sporogony and schizogony.

Tribe 1. Monospora Léger and Duboscq 1908. Single spore in sporogonic cycle.

Tribe 2. Polyspora Léger and Duboscq 1908. Many spores in sporogonic cycle.

AN ANNOTATED LIST OF SPECIES IN THE TRIBE CEPHALINA OF THE
SUBORDER EUGREGARINAE³

Family LECUNIDAE Kamm (1922).

Epimerite simple, symmetrical, gregarines non-septate, spores ovoidal, thickened at one pole. Digestive tract of marine annelids.

Genus *Lecudina* Mingazzini 1891

Characters of the family

Lecudina sp.

Faria, Cunha, and Fonseca (1918) Mem. Inst. Osw. Cruz, 10:17-19. Body spindle-shaped, nucleus spherical.

Host: *Polydora socialis* (Polych.) Taken at Rio de Janeiro, Brazil.

Family POLYRHABDINIDAE Kamm 1922.

Septate gregarines inhabiting the digestive tract of marine annelids. Epimerites varied.

Genus *Polyrhabdina* Mingazzini 1891

(See Caullery and Mesnil 1914 C. R. Soc. Biol., 77:516-20.) Dicystid, sporonts flattened, ovoidal, epimerite a corona of hooks. Intestine of polychaetes of the family *Spionidae*.

Polyrhabdina spionis (Kölliker) (New name for *Gregarina spionis* Köll.)

³ All parasites described are intestinal forms unless otherwise stated.

Type species. Caullery and Mesnil (1914) C. R. Soc. Biol., 77: 516-20.
Host: *Scololepsis fuliginosa*. (Polych.)

Polyrhabdina polydora (Léger) (New name for *Doliocystis* p. Léger.)

Caullery and Mesnil (1914), C. R. Soc. Biol., 77: 516-20.
Host: *Polydora ciliata*. (Polych.)

Polyrhabdina brasili

Caullery and Mesnil (1914) C. R. Soc. Biol., 77: 516-20.
Spor. ovoidal, l. 200 μ . Epim. like type, spines shorter.
Host: *Spio martinensis*. (Polych.)

Polyrhabdina pygospionis

Caullery and Mesnil (1914) C. R. Soc. Biol., 77: 516-20.
Host: *Pygospion seticornis*. (Polych.)

Family CEPHALOIDOPHORIDAE Kamm 1922 (this paper)

Characters of the type genus

Genus *Cephaloidophora* Mawrodiadi 1908

(= *Frenzelina* Léger and Duboscq 1907, preocc. See Arch. zool. exper., 46:lix-lxx.) Sporonts biassociative, no epimerite, cyst dehiscence by simple rupture, spores ovoidal with equatorial line. Development intracellular. Parasites of Crustacea.

Cephaloidophora maculata

Léger and Duboscq (1911) Arch. zool. exper., 46:lix-lxx.
Spor. ovoidal, max. l. 80 μ . Nucl. spher. cysts spher. 100 μ , spores spher. 4 μ .
Host: *Gammarus marinus*. (Crust.) Taken at Roscoff, France.

Cephaloidophora talitri

Mercier (1912) C. R. Soc. Biol., 72: 38-9.
Spor. ovoidal, average l. 40 μ , nucl. spher.
Host: *Talitrus saltator*. (Crust.) Taken at Roscoff, France.

Cephaloidophora (= *Frenzelina*) *delphinia*⁴

Watson (1916) Jour. Parasit., 2: 129-35.
Spor. ovoidal, largest spor. 115 μ \times 64 μ . LP:TL::1:4; WP:WD::1:1.5.⁴
Nucl. spher. Cysts spher. 80 μ .
Host: *Talorchestia longicornis*. (Crust.) Taken at Cold Spring Harbor, L. I.

Cephaloidophora (= *Frenzelina*) *olivia*

Watson (1916) Jour. Parasit., 2: 129-35.
Spor. ellipsoidal, largest 118 μ \times 36 μ . LP:TL::1:5; WP:WD::1:1.3.

⁴ The ratios of length of protomerite to total length of sporont and width of protomerite to width of deutomerite are given for average individuals. These ratios will be abbreviated as above subsequently. Many recurring words will also be abbreviated from now on.

Cysts spher., 60 μ .

Host: *Libinia dubia*. (Crust.) Taken at Cold Spring Harbor, L. I.

Cephaloidophora (= *Frenzelina*) *nigrofusca*

Watson (1916) Jour. Parasit., 2:129-35.

Spor. ovoidal, largest 125 μ ×75 μ . LP:TL::1:4; WP:WD::1:1.5. Nucl. spher.

Hosts: *Uca pugnax*, *U. pugilator*. (Crust.) Taken at Cold Spring Harbor, L. I.

Cephaloidophora (= *Frenzelina*) *ampelisca*

Nowlin and Smith (1917) Jour Parasit., 4:83-88.

Spor. 62 μ ×15 μ . Chromidial body in protomerite.

Host: *Ampelisca spinipes*. (Crust.) Taken at Woods Hole, Mass.

Family STENOPHORIDAE Léger and Duboscq 1904. *Spor. solitary*, Intracellular development. Dehiscence by simple rupture, spores ovoidal with equatorial line. Epimante absent or rudimentary. Parasites of Diplopoda.

Genus *Stenophora* Labbé 1899

With the characters of the family

Stenophora elongata

Ellis (1912) Zool. Anz., 39:685-6.

Spor. elongate-cylindr., max. l. 390 μ . LP:TL::1:20; WP:WD::1:1 to 1:1.6. Prot. pentagonal.

Host: *Orthomorpha coarctata*. (Dipl.) Taken at Quirigua, Guatemala.

Stenophora cockerellae

Ellis (1912) Zool. Anz., 39:681-5.

Spor. elongate-cylindr., max. l. 850 μ . LP:TL::1:15; WP:WD::1:1.7.

Host: *Parajulus* sp. (Dipl.) Taken at Quirigua, Guatemala.

Stenophora robusta

Ellis (1912) Zool. Anz., 40:8-11.

Spor. short, avg. l. 140-180 μ , w. 67 μ . LP:TL::1:8; WP:WD::1:2.5.

Hosts: *Parajulus venustus*; *Orthomorpha gracilis*; *O.* sp. (Dipl.) Taken at Boulder, Col.

Stenophora impressa

Watson (1915) Jour. Parasit., 2:29; (1916) Ill. Biol. Monogr., 2:280.

Spor. ellipsoidal, largest 375 μ ×48 μ . LP:TL::1:12; WP:WD::1:2.3.

Cysts spher. 160 μ .

Host: *Parajulus impressus*. (Dipl.) Taken at Urbana, Ill.

Stenophora diplocorpa

Watson (1915) Jour. Parasit., 2:29; (1916) Ill. Biol. Monogr., 2:284.

Spor. elongate-cylindr., constricted in mid-deut. LP:TL::1:20; WP:WD::1:2.

Host: *Euryurus erythropygus*. (Dipl.) Taken at Urbana, Ill.

Stenophora lactaria

Watson (1915) Jour. Parasit., 2:29; (1916) Ill. Biol. Monogr., 2:282.

Spor. elongate-ellips, largest $480\mu \times 39\mu$ LP:TL::1:12; WP:WD::1:1 2. Cysts spher. 170μ .

Host: *Callipus lactarius* (Dipl.) Taken at Urbana, Ill.

Stenophora caudata (= *Spirosoma caud.*)

Ishii (1915) Ann. zool. japon., 9:7-9.

Spor. tadpole-like in shape, posterior half reduced to cylindrical 'tail' knobbed at end and spirally striated. Max. l. 400μ , max. w. 100μ . LP:TL::1:12. Prot. papillate at apex.

Host: *Fontaneria coarctata* Pocock. (Dipl.) Taken in Gifu, Japan.

(The new genus *Spirosoma* Ishii is named from the spiral deutomerite, none of the generic characters—epimerite, cystdehiscence, spores—being found. From the few positive characters—shape of sporont, protomerite, and diplopod host—it appears to belong to *Stenophora*. The author's specimens were described from alcoholic specimens only.)

Stenophora cunhai

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. elongate-cylindr., prot. sub-spher., largest spor. $250\mu \times 40\mu$. LP:TL::1:5; WP:WD::1:1. Nucl. spher., in post. part of deut.

Host: *Rhinocricus pugio*. (Dipl.) Taken at Rio de Janeiro, Brazil.

Stenophora lutzi

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. elongate-cylindr. prot. cylindr. with constriction below middle. Largest spor. $210\mu \times 15\mu$. LP:TL::1:7.5; WP:WD::1:1.2. Nucl. small, spher.

Host: *Rhinocricus* sp. (Dipl.) Taken at Rio de Janeiro, Brazil.

Stenophora cruzi

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. elongate-cylindr. conical posteriorly, largest spor. $400\mu \times 30\mu$. LP:TL::1:13; WP:WD::1:2. Prot. a truncate cone. Nucl. unknown.

Host: *Rhinocricus* sp (Dipl.) Taken at Rio de Janeiro, Brazil.

Stephora viannai

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. stout-cylindr., bluntly conical posteriorly, largest spor. $1000\mu \times 150\mu$. LP:TL::1:16; WP:WD::1:2. Nucl. elongate-cylindr.

Host: *Rhinocricus* sp. (Dipl.) Taken at Rio de Janeiro, Brazil.

Stenophora umbilicata

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. stout-bodied, ovoidal, prot. small, broad, flat. $320\mu \times 150\mu$. LP:TL::1:6; WP:WD::1:3.7. Nucl. spher.

Host: *Rhinocricus* sp. (Dipl.) Taken at Rio de Janeiro, Brazil.

Stenophora tenuicollis

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. elongated globe-shaped in ant. fourth of deut. constricted to a 'wasp-waist' and widening gradually toward post. end, end broadly-rounded, prot. elongate-conical. Nucl. small, spher. Sporont $400\mu \times 50\mu$.

Host: *Rhinocricus* sp. (Dipl.) Taken at Manguinhos, Rio de Janeiro, Brazil.

Genus *Fonsecaia* Pinto (1918)

Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl. Like *Stenophora* except spores elongate-ellipsoidal, no endospore. Epimerite simple, without protoplasm. (The differentiation of this genus from *Stenophora* is not convincing.)

Fonsecaia polymorpha. Type species

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. $170\mu \times 80\mu$. Broadly ovoidal, prot. small, conical. LP:TL::1:11.3; WP:WD::1:4.4. Nucl. spher. Spores ovoidal $18\mu \times 8\mu$.

Host: *Orthomorpha gracilis*. (Dipl.) Taken at Rio de Janeiro, Brazil.

Family GREGARINIDAE Labbé 1899

Epimerite symmetrical. Sporonts associative or solitary. Cysts with or without spore-ducts.

Genus *Gregarina* Dufour 1828

Biassociative in sporont stage. Epimerite globular or cylindrical. Spores regular. Cysts with spore-ducts.

Gregarina ctenocephalus (= *G. ctenocephalus canis*)

Ross (1909) Ann. Trop. Med. Par., 2:359-63.

Spor. spherical, no dimensions given. Epimerite pyriform, spores barrel-shaped.

Host: *Ctenocephalus serraticeps* (Acarinidae.) Taken at Port Said, Egypt.
Omitted from Sokolow's List.)

Gregarina erecta

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:115-6.

Spor. elongate-cylindrical, largest spor. $730\mu \times 60\mu$. LP:TL::1:5; WP:WD::1:1. Nucl. spher., cysts spher., 300μ , spores typical, $6.4\mu \times 3.2\mu$.

Host: *Broscus cephalotes*. (Col.) Taken in East Prussia.

Gregarina ovoidea

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:117.

Spor. obese, max. l. 200μ . LP:TL::1:5; WP:WD::1:1.8. Nucl. spher.
Cyst spher. 180μ .

Host: *Crypticus quisquilius*. (Col.) Taken in East Prussia.

Gregarina polyaulia

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:118-9.

Spor. cylindr., largest spor. $470\mu \times 250\mu$. LP:TL::1:6; WP:WD::1:1.8.
Cysts spher., 450μ , spores typical, $8.2\mu \times 3.8\mu$.

Hosts: *Harpalus aeneus* and *H. ruficornis*. (Col.) Taken in East Prussia.

Gregarina rostrata

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:120-1.

Spor. elongate-ovoidal, largest spor. 200μ long. LP:TL::1:7; WP:WD::1:2. Nucl. spher., epimerite elongate-cylindrical. Cysts spher., 205μ , spores ovoidal, $5.6\mu \times 3.2\mu$.

Host: *Lagria hirta*. (Col.) Taken in East Prussia.

Gregarina (Gigaductus) exiguus

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:121-2.

Spor. obese, max. length 75μ . LP:TL::1:4; WP:WD::1:2. Cysts spher., 35μ , one long spore-duct. Spores cylindr., $11.3\mu \times 4.8\mu$.

Host: *Pterostichus niger*. (Col.) Taken in East Prussia. The genus *Gigaductus* has been dropped. See Watson (1916) Ill. Biol. Monogr., 2: 317, 389.

Gregarina guatemalensis

Ellis (1912) Zool. Anz., 39:687-8.

Spor. somewhat rectangular, max. l. 276μ . LP:TL::1:3; WP:WD::1:1.5.
Nucl. spher.

Host: *Ninus interstitialis*. (Col.) Taken at Quirigua, Guatemala.

Gregarina consobrina

Ellis (1913) Trans. Amer. Micr. Soc., 32:267.

Spor. obese, average sporont 600μ l., 450μ , w. LP:TL::1:5; WP:WD::1:1.5. Cysts spher., 300μ . Sporeducts up to 1200μ in l. Spores $3.2\mu \times 8\mu$.

Host: *Ceuthophilus valgus*. (Orth.) Taken near Boulder, Colo.

Gregarina grisea

Ellis (1913) Zool. Anz., 42:200.

Spor. ellipsoidal, max. l. 540μ . LP:TL::1:4; WP:WD::1:1.1. Nucl. spher.
Host: *Tenebrio castaneus*. (Col.) Taken at New Orleans, La.

Gregarina longiducta

Ellis (1913) Zool. Anz., 43:78-82.

Spor. obese, associations avg. $800-900\mu$ in 1. LP:TL::1:3; WP:WD::1:1.
Cysts spher., 560μ . Spores $3\mu \times 6.5\mu$.
Hosts: *Ceuthophilus latens*, *C. maculatus*. (Orth.) Taken at Douglas Lake, Mich.

Gregarina typographi

Fuchs (1915) Zool. Jahrb., Syst., 38:109-222.

Spor. stout-bodied, bluntly ovoidal. No measurements given. LP:TL:: about 1:3; WP:WD::1:1. Nucl. small, spher. Cysts spher., one large spore-duct. Spores $34 \times 22\mu$.
Host: *Ips typographus*. (Col.) Taken in Southern Germany.

Gregarina (= *Clepsidrina*) *hylobii*

Fuchs (1915) Zool. Jahrb., Syst., 38:109-222.

Spor. long-ellipsoidal, largest spor. $847\mu \times 304\mu$. Nucl. elongate-ellipsoidal, one elongate karyosome. Cysts ovoidal $420 \times 370\mu$, without hyalin envelope, spore-ducts numerous, spores rectangular with spine at each corner, $6 \times 4\mu$.
Host: *Hyllobius abietes*. (Col.) Taken in Southern Germany.

Gregarina minuta

Ishii (1914) Ann. Zool. japon, 8:436-8; Watson (1916) Ill. Biol. Monogr. 2:343, 392, 409.

Spor. elongate-cylindr., assn. l. 118μ . LP:TL::1:9; WP:WD::1:1.7.
Nucl. spher., cysts spher., 48μ .
Host: *Tribolium ferrugineum*. (Col.) Taken in Prov. of Izu, Japan.

Gregarina globosa

Watson (1915) Jour. Parasit. 2:31; (1916) Ill. Biol. Monogr., 2:401.

Spor. subglobose, $260\mu \times 180\mu$. LP:TL::1:8.6; WP:WD::1:2.4. Nucl. spher.
Host: *Coptotomus interrogatus*. (Col.) Taken at Urbana, Ill.

Gregarina monarchia

Watson (1915) Jour. Parasit., 2:31; (1916) Ill. Biol. Monogr., 2:400.

Spor. elongate-cylindr., largest spor. $570\mu \times 130\mu$. LP:TL::1:7; WP:WD:: 1:1.3.
Host: *Pterostichus stygicus*. (Col.) Taken at Urbana, Ill.

Gregarina barbarara

Watson (1915) Jour. Parasit., 2:31; (1916) Ill. Biol. Monogr., 2:394.
Spor. ovoidal, largest spor. $145\mu \times 90\mu$. LP:TL::1:6; WP:WD::1:2. Nucl. small, spher.
Host: *Coccinella* sp. (Col.) Taken at Oyster Bay, L. I.

Gregarina katherina

Watson (1915) Jour. Parasit., 2:31; (1916) Ill. Biol. Monogr., 2:392.
Spor. ellipsoidal, largest spor. $78\mu \times 35\mu$. LP:TL::1:7; WP:WD::1:1.7.
Nucl. spher.
Host: *Coccinella novemnotata*. (Col.) Taken at Oyster Bay, L. I.

Gregarina intestinalis

Watson (1915) Jour. Parasit., 2:32; (1916) Ill. Biol. Monogr., 2:399.
Spor. broadly ellipsoidal, largest spor. $160\mu \times 80\mu$. LP:TL::1:5; WP:WD::1:2.
Host: *Pterostichus stygicus*. (Col.) Taken at Urbana, Ill.

Gregarina gracilis

Watson (1915) Jour. Parasit., 2:32; (1916) Ill. Biol. Monogr., 2:398.
Spor. elongate-ellipsoidal, largest spor. $190\mu \times 80\mu$. LP:TL::1:8; WP:WD::1:2. Nucl. spher. cysts spher. 90μ .
Host: Larva of Elateridae. (Col.) Taken at Urbana, Ill.

Gregarina tenebrionella

Watson (1915) Jour. Parasit., 2:32; (1916) Ill. Biol. Monogr., 2:397.
Spor. sub-globose, largest spor. $70\mu \times 42\mu$. LP:TL::1:4; WP:WD::1:1.7.
Nucl. spher.
Host: Larva of Tenebrionidae. (Col.) Taken at Urbana, Ill.

Gregarina fragilis

Watson (1915) Jour. Parasit., 2:32; (1916) Ill. Biol. Monogr., 2:395.
Spor. ellipsoidal, largest spor. $110\mu \times 60\mu$. LP:TL::1:5; WP:WD::1:2.
Nucl. spher.
Host: *Coccinella* sp. (Col.) Taken at Urbana, Ill.

Gregarina nigra

Watson (1915) Jour. Parasit., 2:33; (1916) Ill. Biol. Monogr., 2:326.
Spor. cylindrical, largest spor. $530\mu \times 180\mu$. LP:TL::1:4; WP:WD::1:1.4. Nucl. spher.
Hosts: *Melanoplus femur-rubrum*, *M. differ ntialis*, *Encoptolophus sordidus*.
(Orth.) Taken at Urbana, Ill.

Gregarina galliveri

Watson (1915) Jour. Parasit., 2:33; (1916) Ill. Biol. Monogr., 2:321.

Spor. $300\mu \times 180\mu$. LP:TL::1:5; WP:WD::1:1. Prot. flat, broad, deut. widest in post. half. Nucl. spher. Cysts spher., 350μ .

Host: *Gryllus abbreviatus*. (Orth.) Taken at Oyster Bay, L. I.

Gregarina stygia

Watson (1915) Jour. Parasit., 2:33; (1916) Ill. Biol. Monogr., 2:324.

Spor. obese, largest $180\mu \times 100\mu$. LP:TL::1:6; WP:WD::1:1.6. Nucl. spher., cysts spher. 150μ .

Host: *Ceuthophilus stygius*. (Orth.) Taken at Cold Spring Harbor, L. I.

Gregarina illinensis

Watson (1915) Jour. Parasit., 2:34; (1916) Ill. Biol. Monogr., 2:318.

Spor. elongate-cylindr., largest spor. $550\mu \times 180\mu$. LP:TL::1:5; WP:WD::1:1.5. Nucl. small, spher.

Host: *Ischnoptera pennsylvanica*. (Orth.) Taken at Urbana, Ill.

Gregarina platyni

Watson (1916) Ill. Biol. Monogr., 2:402.

Spor. elongate-cylindr., max. l. 610μ . LP:TL::1:4; WP:WD::1:1. Prot. constricted in middle. Nucl. spher.

Host: *Platynus ruficollis*. (Col.) Taken at Oyster Bay, L. I.

Gregarina udeopsyllae

Watson (1916) Ill. Biol. Monogr., 2:327.

Spor. obese, largest $310\mu \times 200\mu$. LP:TL::1:5; WP:WD::1:1.5.

Host: *Udeopsylla nigra*. (Orth.) Taken at Urbana, Ill.

Gregarina neglecta

Watson (1916) Jour. Parasit., 3:65-75.

Spor. ovoidal, largest spor. $500\mu \times 230\mu$. LP:TL::1:6; WP:WD::1:1.5. Cysts spher., 300μ .

Host: *Ceuthophilus neglectus* (Orth.) Taken at Oyster Bay, L. I.

Gregarina platydema

Kamm (1918) Jour. Parasit., 4:159-63.

Spor. cylindr, slender, largest spor. $1210\mu \times 150\mu$. LP:TL::1:12; WP:WD::1:1.5. Nucl. spher. Epim. a simple cone.

Host: *Platydema excavatum*. (Col.) Taken at Urbana, Ill.

Gregarina diabrotica

Kamm (1918) Jour. Parasit., 4:159-63.

Spor. elongate-cylindr. largest spor. $270\mu \times 105\mu$. LP:TL::1:3.5; WP:WD::1:1.6. Nucl. spher. Epim. a sessile knob.

Host: *Diabrotica vittata*. (Col.) Taken at Urbana, Ill.

Gregarina watsoni

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp.; 6 pl.

Spor. elongate-ovoidal, largest spor. $350\mu \times 152\mu$. LP:TL::1:7; WP:WD::1:1.5. Nucl. spher. Epim. globular.

Host: *Omoplata normalis*. (Col.) Taken at Nictheroy, Brazil.

Gregarina chagasi

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. sub-globular to cylindrical. Largest spor. $130\mu \times 50\mu$. LP:TL::1:3.6; WP:WD::1:1.5. Nucl. spher. Cysts ovoidal.

Host: *Conocephalus frater*. (Orth.) Taken at Manguinhos, Brazil.

Gregarina aragãoi

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. elongate-ovoidal, max. l. 170μ , max. w. 70μ . LP:TL::1:5.7; WP:WD::1:1.7. Nucl. spher. Epim. a small papilla. Cysts subspherical.

Host: *Systema* sp. (Col.) Taken at Manguinhos, Brazil.

Gregarina sp.

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:146.

Host: *Sminthurus fuscus*. (Thysan.) Taken in East Prussia.

Gregarina sp.

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:148.

Host: *Oribata geniculata*. (Arachn.) Taken in East Prussia.

Genus *Hirmocystis* Labbé 1899

Associations of two to twelve or more. Epimerite a small papilla. Cysts dehisce by simple rupture. Spores ovoidal.

Hirmocystis harpali

Watson (1916) Ill. Biol. Monogr., 2:378.

Spor. elongate, largest $500\mu \times 80\mu$. LP:TL::1:7; WP:WD::1:1.2. Maximum of four in a chain. Nucl. spher. Epim. large and spherical.

Host: *Harpalus pennsylvanicus erythropus*. (Col.) Taken at Urbana, Ill.

Genus *Uradiophora* Mercier 1912

Arch. zool. expér., (5) 10:198. Sporonts associative, cysts without spore-ducts. Spores spherical or sub-spherical with equatorial line, extruded in chains. Epimerite an elongated papilla. Deut. with small appendix.

Uradiophora cuénoti (= *Cephaloidophora cuénoti*) Type species.

Mercier (1911) C. R. Soc. Biol., 71:51-3; (1912) Arch. zool. expér., (5) 10:177-202.

Spor. associated in chains of from 2 to 4 individuals, very elongate, max. 1. spor. 700 μ . Nucl. spher. Epim. an elongated papilla. Deut. with small atrophied appendix. Cysts ovoidal, 44 μ in l., spores 4 μ .

Host: *Atyaephyra Desmaresti*. (Crust.) Taken at Nancy, France.

Genus *Pyxinoïdes* Trégouboff 1912

Arch. zool. expér., (5) 10:liii-lxi. Sporonts in twos, development extracellular, epimerite a slightly stalked globular papilla with 16 longitudinal furrows, with small conical papilla at apex.

Pyxinoïdes balani. Type species

Trégouboff (1912) Arch. zool. expér., (5) 10:liii-lxi.

Max. l. primitive 130 μ , satellite 60 μ . Nucl. spher.

Hosts: *Balanus amphitrite*, *B. eburneus*. (Crust.) Taken at Cette, France.

Genus *Leidyana* Watson 1915

Jour. Parasit., 2:35. Sporonts solitary, epimerite a small sessile knob, dehiscence by spore-ducts, spores in chains, dolioform.

Leidyana (= *Stenophora*) *erratica*. Type species.

Crawley (1903) Proc. Acad. Nat. Sci., Phila., 55:45.

Watson (1916) Ill. Biol. Monogr., 2:328-30.

Leidyana tinei

Keilin (1918) Parasit., 10:406-10.

Spor. long-ellipsoidal, max. l. 300 μ , w. 85 μ . LP:TL::1:1.5; WP:WD::1:1.7. Cysts spher. 110 μ , spores barrel-sh., 7 μ long.

Host: *Endrosis fenestrella*. (Lepid.) Taken at Cambridge, Eng.

Genus *Protomagalhãensia* Pinto 1918, Brazil-Medico

Spores barrel-shaped with spine at each corner, sporonts attenuated, several individuals in an association, often attached laterally. Myonemes prominent.

Protomagalhãensia (= *Gregarina*) *serpentula*. Type species.

Magalhães (1900) Arch. parasit., 3:34-69; Pinto (1918) Brazil-Medico.

Family DIDYMOPHYIDAE Léger 1892

Associations of two or three individuals. None-septate in satellites.

Genus *Didymophyes* Stein 1848

Epimerite a small pointed papilla. Cyst dehiscence by simple rupture. Spores ellipsoidal.

Didymophyes (= *Gregarina*) *minuta*

Ishii (1914) Ann. Zool. japon., 8:435-41.

Watson (1916) Ill. Biol. Monogr., 2:343.

Sporonts elongate, 188 μ × 26 μ . Ratio LP:TL::1:23; WP:WD::1:1.5. Nucleus spherical. Cyst and spores unknown.

Host: *Tribolium ferrugineum*. (Col.) Taken in Prov. of Izu, Japan.

Family ACTINOCEPHALIDAE Léger 1892

Sporonts solitary, epimerites varied, simple rupture of cysts.

Genus *Actinocephalus* Stein 1848

Epimerite with many upwardly-directed spines, spores biconical.

Actinocephalus permagnus (?*A. sp.* Pfeiffer 1893; *A. stelliformis* Wasielewski 1896)

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:

Spor. elongate, max. l. 1.3 mm. LP:TL::1:17; WP:WD::1.1:1. Nucl. ellipsoidal, cysts nearly spher., 750 μ . Spores diamond-shaped, 7.6 μ ×5 μ . Host: *Procrustes coriaceus*. (Col.) Taken in East Prussia.*Actinocephalus parvus*

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:?

Spor. ovoidal, largest 140 μ ×75 μ . LP:TL::1:5; WP:WD::1:1.3. Nucl. ovoidal. Epim. a corona of digitiform processes upon a short neck.Hosts: *Ceratophyllus fringillae*, *C. gallinae* larv. (Dipt.) Taken in East Prussia.*Actinocephalus echinatus*

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:?

Spor. cylindro-conical, largest 400 μ in l. LP:TL::1:5; WP:WD::1.1:1. Cysts spher., 330 μ , spores biconical, 8 μ ×4.8 μ .Hosts: *Pterostichus niger*, *P. vulgaris*. (Col.) Taken in East Prussia.*Actinocephalus zophus* (= *Stephanophora zopha* Ellis (1913) Zool. Anz., 42:200-2).

Ellis (1913) Trans. Amer. Micr. Soc., 32:278.

Spor. elongate-cylindr., max. l. 1600 μ . LP:TL::1:12; WP:WD::1:1.7. Epim. persistent, stout-necked, constricted at base, and terminating in corona of 9 or more small digitiform processes.Hosts: *Nyctotheres barbarata* (*N. barbata*), *Alobates pennsylvanicus*. (Col.) Taken at New Orleans, La.*Actinocephalus brachydactylus*

Ellis (1913) Trans. Amer. Micr. Soc., 32:279.

Spor. elongate-ovoidal, l. 500 μ . LP:TL::1:4; WP:WD::1:1.Host: Nymphs of *Aeschna sp.* (Neur.) Taken at Douglas Lake, Mich.*Actinocephalus crassus* (= *Stephanophora crassa* Ellis (1912) Zool. Anz., 39:688-9).

Ellis (1913) Trans. Amer. Micr. Soc., 32:278.

Avg. spor. 50 μ –60 μ in l. LP:TL::1:3.5; WP:WD::1:1.5. Nucl. spher.Host: *Leptochirus edax*. (Col.) Taken at Quirigua, Guatemala.*Actinocephalus gimbeli* (= *Stenophora gimbeli* Ellis (1913) Zool. Anz., 41:464.) Watson (1916) Ill. Biol. Monogr., 2:353.

Spor. obese, l. 500μ . LP:TL::1:5; WP:WD::1:1.2.

Host: *Harpalus pennsylvanicus*. (Col.) Taken at Vincennes, Ind.

Genus *Pyxinia* Hammerschmidt 1838

Epimerite a flat crenulate crateriform disc with central style. Spores biconical.

Pyxinia bulbifera

Watson (1916) Jour. Parasit., 3:65-75.

Spor. long, slender, longest spor. $850\mu \times 160\mu$. LP:TL::1:5. WP:WD::1:1.3. Epim. typical, $60\mu - 100\mu$ l. Nucl. spher.

Host: *Dermestes lardarius*. (Col.) Taken at Oyster Bay, L. I.

Genus *Amphorocephalus* Ellis 1913

Zool. Anz., 41:462. Epim. dilated in middle, terminating in a concave disc peripherally fluted at ant. end. Prot. constricted across middle. Spores not known.

Amphorocephalus amphorellus. Type species.

Ellis (1913) Zool. Anz., 41:463-4; Trans. Amer. Micr. Soc., 32:276-7.

Spor. elongate, l. $500\mu - 970\mu$. LP:TL::1:17; WP:WD::1:2.

Host: *Scolopendra heros*. (Chil.) Taken at Boulder, Col.

Genus *Bothriopsis* Schneider 1875

Epimerite with long slender filaments. Prot. very large. Spores biconical.

Bothriopsis (= *Legeria*) *terpsichorella*

Ellis (1913) Trans. Amer. Micr. Soc., 32:276; Watson (1916) Ill. Biol. Monogr., 2:356.

Prot. of spor. equal to or longer than deut. Avg. l. 720μ , w. 145μ . LP:TL::1.5:1; WP:WD::1.3:1.

Host: *Hydrophilus* sp. (Col.) Taken at Douglas Lake, Mich.

Bothriopsis claviformis

Pinto (1918) Brazil Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. elongate-triangular, widest at ant. end, bluntly acuminate. LP:TL::1:7; WP:WD::1.4:1.

Host: *Aeschnida* larva. (Odon.) Taken at Manguinhos, Brazil.

Bothriopsis oswaldocruzi

Hasselmann (1918) Brazil-Medico, Nov. 2, 1918.

Genus *Stylocystis* Léger 1899

Epimerite a sharp recurved cone. Spores biconical.

Stylocystis ensiferus (= *Stylocephalus en.* Ellis 1912 Zool. Anz., 39:686)

Ellis (1913) Trans. Amer. Micr. Soc., 32:274.

Avg. l. spor. $40-65\mu$. LP:TL::1:2.5; WP:WD::1:1.2.

Host: *Leptochirus edax*. (Col.) Taken at Quirigua, Guatemala.

Genus *Steinina* Léger and Duboscq 1904

Epimerite a short digitiform process changing into a flat button. Spores biconical.

Steinina rotundata

Ashworth and Rettie (1912) Proc. Roy. Soc. Lond., B 86:31.

Spor. 180μ long, 80μ wide. Epim. sometimes a blunt cone with central style, again a saucer-shaped disc with crenulate periphery. Spor. ovoidal, nucl. spher. Cysts spher. 185μ , dehiscing in int. of host, spores ovoidal, $12\mu \times 7\mu$.

Hosts: *Ceratophyllus styx*, *C. farreni*, *C. gallinae*. (Dipt.) Taken near Edinburgh, Scotland.

Steinina obconica

Ishii (1914) Ann. zool. japon., 8:439.

Spor. ovoidal, largest $148\mu \times 80\mu$. LP:TL::1:5; WP:WD::1:1. Epim. a minuted style. Prot. compressed ant.-post. Nucl. spher. Cysts ovoidal. Host: *Tribolium ferrugineum*. (Col.) Taken in Prov. of Izu, Japan.

Steinina rotunda

Watson (1915) Jour. Parasit., 2:32; (1916) Ill. Biol. Monogr., 2:364.

Spor. globose, largest $250\mu \times 130\mu$. LP:TL::1:2.3; WP:WD::1:1.1. Epim. spher.

Host: *Amara angustata*. (Col.) Taken at St. Joseph, Ill.

Steinina harpali

Watson (1916) Ill. Biol. Monogr., 2:365.

Coelomic. Spor. small, obese, largest spor. $200\mu \times 100\mu$. LP:TL::1:4; WP:WD::1:1.3. Epim. a short cone changing into a sphere then cup-shaped. Nucl. small, spher. Cysts spher. 12μ .

Host: *Harpalus pennsylvanicus longior*. (Col.) Taken at Urbana, Ill.

Family ACANTHOSPORIDAE Léger 1892

Spor. solitary, epim. varied. Dehiscence by simple rupture, spores with equatorial and polar spines.

Genus *Corycella* Léger 1892

Epim. globular with 8 large recurved hooks, spores biconical, 4 spines at each pole.

Corycella orthomorpha

Hasselmann (1918) Brazil-Medico, Oct. 5, 1918.

Genus *Prismatospora* Ellis 1914

Trans. Amer. Micr. Soc., 33:215. Spores hexagonal, truncate at ends with one row of long spines at each pole. Epim. subglobose with lateral recurved hooks.

Prismatospora evansi. Type species

Ellis (1914) Trans. Amer. Mic. Soc., 33:215.

Spor. 400μ in avg. l., broadly conical, LP:TL::1:3; WP:WD::1:1; Prot. broad, blunt, deut. tapering. Nucl. small, spher. Cysts subspher., 370μ , dehiscence by simple rupture, spores $11\mu \times 5.8\mu$

Hosts: Nymphs of *Tramea lacerata* and *Sympetrum rubicundulum*. (Neur.)

Taken at Douglas Lake, Mich.

Genus *Cometoides* Labbé 1899

Epim. a sphere with long slender filaments. Spores biconical with one polar and two equatorial rows of spines.

Cometoides sp.

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:138.

Spor. cylindro-conical. Max. l. 360μ . LP:TL::1:5; WP:WD::1:1. Nucl. ellipsoidal. Epim. a flattened papilla with long filaments. Cysts spher. 160μ .

Host: *Carabus* sp. larva. (Col.) Taken in East Prussia.

Family STYLOCEPHALIDAE Ellis

New name for Stylorhynchidae Schneider 1886 preocc. Ellis (1912) Zool. Anz., 39:25. Spor. solitary, epim. varied, nucl. ovoidal, dehiscence by pseudocyst, spores irregular, in chains.

Genus *Stylocephalus* Ellis

New name for Stylorhynchus Stein 1848 preocc. Ellis (1912) Zool. Anz., 39:25. Epim. a papilla at end of a long slender neck. Cysts papillate, spores hat-shaped.

Stylocephalus giganteus

Ellis (1912) Zool. Anz., 39:25-7.

Spor. elongate, $1200-1800\mu$ in l. LP:TL::1:15; WP:WD::1:1. Cysts spher., 450μ . Spores $7 \times 11\mu$.

Hosts: *Eleodes* sp.; *Asida opaca*; *Asida* sp.; *Eusattus* sp. (Col.) Taken at Boulder and Denver, Col.

Genus *Bulbocephalus* Watson 1916

Jour Parasit., 3:66. Epim. a dilated papilla in middle of rather long slender neck. Nucl. ellipsoidal.

Bulbocephalus wardi. Type species

Watson (1916) Jour. Parasit., 3:66.

Spor. stout, widest at shoulder, largest spor. $290\mu \times 45\mu$. LP:TL::1:5; WP:WD::1:1. Epim. as above. Nucl. placed diagonally. Cysts and spores unknown.

Host: *Clerid* larva. (Col.) Taken at Oyster Bay, L. I.

Bulbocephalus elongatus

Watson (1916) Jour. Parasit., 3:66.

Spor. very long and slender, max. l. 600μ , w. 50μ . LP:TL::1:11; WP:WD::1:1. Epim. as above. Nucl. diagonally placed.

Host: *Cucujus* larva. (Col.) Taken at Oyster Bay, L. I.

Family DACTYLOPHORIDAE Léger 1892

Epimerite complex, sporonts solitary, cysts dehisce by lateral pseudocyst or simple rupture, spores elongate.

Genus *Nina* Grebnecki 1873

Protomerite two long lobes fused at one end, peripherally set with teeth and long slender filaments. Spores in chains.

Nina indicia

Merton (1911) Abh. Seneck. nat. Ges. Frankf., 34:119-26.

Spor. elongate, max. l. 1500μ . LP:TL::1:20; WP:WD::4:1. Prot. low, very broad, two long narrow parallel plates attached laterally, free at one end, each plate armed with a ridge of short sharp teeth. Nucl. spher.

Host: *Scolopendra subspinipes*. (Chil.) Taken at Heidelberg, Germ.

Nina (= *Pterocephalus*) *leitôdacunhai*

Hasselmann (1918) Brazil-Medico, Sept. 21, 1918.

Genus *Echinomera* Labbé 1899

Epimerite an eccentric cone with short digitiform processes. Dehiscence by simple rupture. Spores cylindrical, in chains.

Echinomera (= *Gregarina*) *magalhaesi*⁵

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor. elongate-conoidal, widest at shoulder. Largest spor. $300\mu \times 70\mu$. LP:TL::1:4.3; WP:WD::1:1.1. Epim. a polymorphic eccentric cone. Nucl. ellipsoidal.

Host: *Scolopendra* sp. (Chil.) Taken at Rio de Janeiro, Brazil.

Genus *Seticephalus* Kamm 1922 (this paper)

A dense tuft of short, upwardly-directed brush-like bristles superimposed upon the broad, flat-topped protomerite, persistent. A chromidial body in protomerite. Parasitic in Chilopoda.

Seticephalus (= *Gregarina*) *elegans*. Type species.

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarinas, Rio de Janeiro, 116 pp., 6 pl.

Spor elongate-conoidal, acuminate, largest spor. $75\mu \times 32\mu$. LP:TL::1:7.5; WP:WD::1:1.2. Prot. broad, flat, nucl. small ellipsoidal. Epim.

⁵ This species was placed by the author in the Genus *Gregarina*.

short bristle-like filaments across whole ant. end of prot. Cyst and spores unknown.

Host: *Scolopendra* sp. (Chil.) Taken at Rio de Janeiro, Brazil.

(This species was placed by the author in the genus *Gregarina* but it is unlike any member of that genus or any hitherto described genus and is therefore made the type species of a new genus.)

GENERA OF UNCERTAIN POSITION

Genus *Agrippina* Strickland 1912 Parasit., 5:108

Sporonts solitary, epim. a circular disc armed with peripheral digitiform processes, with short neck. Spores long-ovoidal.

Agrippina bona. Type species

Strickland (1912) Parasit., 5:108.

Spor. elongate, conical, avg. l. 175μ . Nucl. ellipsoidal. Epim. as stated. Cysts spher. dehiscing by simple rupture. Spores $6.6\mu \times 7\mu$.

Host: *Ceratophyllus fasciatus*. (Dipt.) Taken at Cambridge, England.

Genus *Metamera* Duke 1910

Q. J. Mic. Sci., 55:261-86. Epimerite subconical, apex eccentric, with corona of numerous branched digitiform appendages. Cysts dehisc by simple rupture. Sporonts solitary.

Metamera schubergi. Type species

Duke (1910) Q. J. Mic. Sci., 55:261-86.

Spor. $150\mu \times 45\mu$. Deut. with one to three septa posterior to nucleus.

Cysts spher., spores ovoidal, $9\mu \times 7\mu$

Hosts: *Glossophonia complanata*, *Hemiclepsis marginata*. (Annelida.)

Taken at Heidelberg, Germ. and Cambridge, Eng.

(This species was left out of Sokolow's Synopsis (1911).)

Genus *Ganymedes* Huxley 1910

Q. J. Mic. Sci., 55:155-75. Non-septate, with motile extensile fixation-organ, cupped posterior end for association, nucleus large, spherical. Inhabit intestine and liver of host.

Ganymedes anasidis

Huxley (1910) Q. J. Mic. Sci., 55:155-75.

Characters of the genus. Avg. l. $250-300\mu$, w. $17-20\mu$. Spor. elongate-cylindrical.

Host: *Anaspides tasmaniae*. (Crust.) Taken in Tasmania.

(This species was omitted from Sokolow's List—1911.)

SPECIES OF UNCERTAIN POSITION

Gregarina crassa

Ishii (1915) Ann. zool. japon., 8:438-9.

Spor. ovoidal, max. l. 242μ , w. 64μ . Nucl. spher. LP:TL::1:19; WP:WD::1:4.

Host: *Tribolium ferrugineum*. (Col.) Taken in Prov. of Izu, Japan.
Prot. lacking in satellite. See Watson (1916) Ill. Biol. Monogr., 2:409.

Gregarina coptotomi

Watson (1916) Jour. Parasit., 2:406.

Spor. solitary, epim. and cysts unknown. Spor. 210μ l. LP:TL::1:7;
WP:WD::1:2.3. Nucl. ellipsoidal.

Host: *Coptotomus interrogatus*. (Col.) Taken at Urbana, Ill.

Gregarina brasiliensis

Pinto (1918) Brazil-Medico; (1919). Contribuicao ao estudo dos
Gregarinos Rio de Janeiro, 116 pp., 6 pl.

Spor. not associative, pyriform, acutely acuminate, largest spor. $92\mu \times 35\mu$.
LP:TL::1:2.4; WP:WD::1:1.1. Prot. ovo-cylindrical, nucl. ovoidal.

Host: *Scolopendra* sp. (Chil.) Taken at Rio de Janeiro, Brazil.

Gregarina légeri

Pinto (1918) Brazil-Medico; (1919). Contribuicao ao estudo dos
Gregarinos Rio de Janeiro, 116 pp., 6 pl.

Spor. not associative, rectangular with bulbous post. extremity, largest
spor. $290\mu \times 80\mu$ (at post. end of deut.) LP:TL::1:4.8; WP:WD::1:1.
Prot. square, nucl. ellipsoidal, in dilated post. portion of deut.

Host: *Stylopyga americana*. (Orth.) Taken at Rio de Janeiro, Brazil.

Taeniocystis legeri

Cognetti de Martiis (1911) Arch. Protistenk., 23:247.

Spor. segmented in both prot. and deut., max. l. 1600μ . Up to 19 segments.
Nucl. ovoidal. Epim., cysts, and spores unknown.

Host: *Kynotus Pittarellii* (Oligoch.) Taken at Moramanga, Madagascar.

This species is placed among the 'Uncertain Species' because the
'protomerite' is divided into three segments and the parasite is coelomic.

MISCELLANEOUS

Unnamed gregarines:

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:46-7. From the fol-
lowing hosts: *Heledona agricola* (Col.), *Polyporus sulphureus* (Plathy.),
Tritoma quadripustulata (Col.), *Cychrus rostratus* (Col.), *Scolopendrella*
sp. (Chil.).

Unnamed Cometoides-like form:

Wellmer (1911) Schr. Physik. Ges. Königsbg., 52:46-7. Host: *Hydro-
philus aterrimus*. (Col.).

Unnamed gregarines of several species:

Pantel (1913) La Cellule, 29 (1): 142-4. Host: *Forficula auricularia*.
(Orth.)

Unnamed gregarine:

Buddington (1910) Science, 31:470. Host: *Balanus eburneus*. (Crust.)

Unnamed gregarines similar to *Leidyana tinei*:

Keilin (1918) Parasit., 10:406. Hosts: *Oecophora pseudospretella*, *Tinea pallescentella*. (Lepidopt.)

AN ANNOTATED LIST OF SPECIES IN THE TRIBE ACEPHALINA OF THE
SUBORDER EUGREGARINAE

Genus *Monocystis* Stein 1848

Non-septate, irregular, motile sporonts, cysts with incomplete sporulation, spores navicular, octozoic. (All herein described are coelomic or inhabit seminal vesicles unless stated otherwise.)

Monocystis pareudrili

Cognetti de Martiis (1911) Arch. Protistenk., 23:216-40.
Spor. subspherical, max. diam. 60μ . Spores ovoidal, $10 \times 5\mu$.
Host: *Pareudrilus pallidus*. (Polych.) Taken in 'Equatorial Africa.'

Monocystis thamnodrili (= *M. sp.* Cognetti 1906)

Cognetti de Martiis (1911) Mem. R. Accad. Sci. Torino, 46: (2) 147-262.
Host: *Rhinodrilus* (= *Thamnodrilus*) *incertus*. (Polych.) Taken in Ecuador.

Monocystis rostrata

Muslow (1911) Arch. Protistenk., 22:20-55.
Sem. ves. Spor. spindle-shaped, cysts spher., spores spindle-shaped.
Host: *Lumbricus terrestris*. (Oligoch.) Taken in Munich.

Monocystis catenata (=partim. *M. herculea* Hesse 1909)

Muslow (1911) Arch. Protistenk., 22:51.
Spor. spher. 425μ , in chains. Cysts nearly spher. 500μ . Spores $14 \times 6\mu$.
Host: *Lumbricus terrestris*. (Oligoch.)

Monocystis minima

Konsuloff (1916) Arch. Protistenk., 36:353-61.
Spor. ovoidal, 42μ , spores ellipsoidal, 7μ long. Intestinal par.
Hosts: *Euchlanis dilatata*. (Rotif.); *Salpina mucronata* Ehrbg. (Rotif.)
Taken at Sofia.

Monocystis perforans

Pinto (1918) Brazil-Medico; (1919) Contribuição ao estudo das Gregarines, Rio de Janeiro, 113 pp., 6 pl.
Sem. ves. Spor. ovoidal to cylindr. in chains. $1200\mu \times 800\mu$. Nucl. ellipsoidal, cysts spher. spores $24 \times 7.5\mu$.
Host: *Glossoscolex wiengreeni*. (Ann.) Taken at Rio de Janeiro, Brazil.

Monocystis michaelsoni

Hesse (1916) Tolosani Monit. Zool. ital, 27:217-22.

Monocystis sp.

Wellmer (1911) Schr. Physik. Ges. Königsb., 52:147. Coleomic.

Host: *Helophorus aquaticus*. (Col.) Taken in East Prussia.

Genus *Lithocystis* Giard 1876

Emend. Pixell-Goodrich (1915) Q. J. Mic. Sci., 61:81-104. Spor. elongate, very motile. Spores in rosettes, long ovoidal, truncate. Epispore a funnel at one end through which 8 sporozoites escape, other end a tubular tail.

Lithocystis foliacea

Pixell-Goodrich (1915) Q. J. Mic. Sci., 61:81-104.

Coelomic. Max. l. sporont 1.3 mm. Cysts spher. 600 μ . Spores long-ovoidal, 24 \times 9 μ , tail three times as long as spore, with leaf-like expansion, funnel at other end.

Host: *Echinocardium cordatum*. (Echinodermata.) Taken at Naples and Plymouth, Eng.

Lithocystis microspora

Pixell-Goodrich (1915) Q. J. Mic. Sci., 61:81-104.

Coelomic. Max. l. 1mm. Cysts spher. 300 μ . Spores 13 \times 7 μ , with tail two or three times as long, narrow, tapering.

Host: *Spatangus purpureus*. (Echinod.) Taken off Plymouth.

Genus *Urospora* Schneider 1875

Emend. Pixell-Goodrich (1915) Q. J. Mic. Sci., 61:81-104. Trophozoites coarsely granular, elongate. Female gamete with long flagellum, male non-motile. Cysts spher. 8 sporozoites which escape from one end of funnel-shaped epispore other end a filamentous tail.

Urospora synaptae (= *Syncystis syn.* Cuénot (1891) Rev. Biol. nord. Fr., 3:295.)

Cuénot (1912) Bull. sta. biol. Arcachon, Bord., 14:85.

One form spor. rotund, 300 μ max. diam, other vermiform 500 μ long, very motile. Cysts spher. 150 μ , spores ovoidal, 20 μ , one end cupped other a long filament. Coelomic and intestinal.

Host: *Synapta galliennei*. (Echinod.) Taken at Arcachon and Roscoff, Fr.

*Urospora travisiae**Urospora ovalis*

Mawrodiadi (1914) Varsava Univ. izv., No. 8, 1-164.

Urospora neapolitana

Pixell-Goodrich (1915) Q. J. Mic. Sci., 61:81-104. See also Q. J. Mic. Sci., 60:159-74.

Spor. 200-300 μ l., 40 μ w. Cysts spher. 100-200 μ . Spores 12 \times 7 μ , ovoidal, cupped at one end, tail twenty times as long as spore and tightly coiled at other end.

Host: *Echinocardium cordatum*. (Echinod.) Taken at Naples.

Urospora echinocardii

Pixell-Goodrich (1915) Q. J. Mic. Sci., 61:81-104.

Troph. and cysts same as *U. neapolitana*. Spores 19 μ long, tails 6 or 7 times as long as spore, not tightly coiled.

Hosts: *Echinocardium* sp. and *Spatangus* sp. (Echinod.) Taken at Plymouth, Eng.

Genus *Gonospora* Schneider 1875. Emend

Pixell-Goodrich (1916) Q. J. Mic. Sci., 61:205-16. Polymorphic, nematoid, pyriform or ovoidal. Cysts spher., spores with funnel at one end refringent endo-spore which gives off processes supporting thick transparent ectospore and funnel at other.

Gonospora mercieri (= *Lithocystis mülleri* Giard 1886.)

Cuénot (1912) Bull. sta. biol. Arcachon, Bord., 14:88-90.

Spor. spher., max. diam. 160 μ . Cysts 180 μ in diam., spores 23 μ long, ovoidal, no caudal filament. Intestinal par.

Host: *Synapta digitata*. (Echinod.) Taken at Arcachon, France.

Gonospora glyceræ

Pixell-Goodrich (1916) Q. J. Mic. Sci., 61:205-16.

Coelom par., generally surrounded by host epithelium. Spor. 1 to 5 mm. long, widest near ant. end and tapering to blunt point. Nucl. spher. cysts spher. spores 10 \times 8 μ . Refringent endospore with many supporting processes. Associations of spor. by 'ball-and-socket' dovetailing of ant. ends. Host: *Glycera siphonostoma*. (Polych.) Taken at Naples.

Gonospora testiculi (= *Cystobia test.*)

Trégouboff (1916) C. R. Soc. Biol., 79:652-5; (1918) Arch. zool. expér., 57:471-509.

L. 250 μ , elongate-ovoidal rounded at ant. end, pointed at post. end.

Cysts 60-100 μ in diam. Spores 8 to 10 μ in l. Testicle par.

Host: *Cerithium vulgatum*. (Moll.) Taken at Villefranche-sur-Mer, France.

Gonospora intestinalis (= *Cystobia int.*)

Sokoloff (1914) Arch. Protistenk., 32:221-8.; Trégouboff, (1918) C. R. Soc. Biol., 79:652-55, Pixell-Goodrich (1916) Q. J. Mic. Sci., 61-205-16.

Intestinal par. Spor. elongate, max. l. 300μ . Cysts nearly spher. 300μ . Spores ovoidal, 10μ 1.

Host: *Glycera siphonstoma*. (Polych.) Taken at Naples.

Genus *Rhynchocystis* Hesse 1909

Spor. ovoidal to cylindr. ant. end conical. Spores biconical with like poles.

Rhynchocystis hessei

Cognetti de Martiis (1911) Mem. R. Accad. Sci. Torino, 46:207-16.

Max. l. spor. 116μ , w. 88μ . Coelomic par. Spores $13 \times 2.5\mu$.

Host: *Pareudrilus pallidus*. (Polych.) Taken in 'Equatorial Africa.'

Rhynchocystis geoplanæ

Fuhrmann (1916) Centrallbl. Bakt. Parasit., 77:482-5.

Parenchymatous and intestinal par. Largest spor. $280 \times 80\mu$. Nucl. large, spher. Cysts spher. 180μ . 'Pseudoepimerite' a rosette.

Hosts: *Geoplanea backi*, *G. amagensis*. (Furh.) Taken in Columbia, S. A.

Genus *Diplocystis* Künstler 1887

Coelomic, associating early to form spherical masses. Spores spherical or oblong. Eight sporozoites.

Diplocystis phryganeæ

Berg-von-Emme (1913) Arch. Protistenk., 28:43-51.

Spor. subspher. nucl. spher.

Host: *Phryganea grandis* (Neur.) Taken at Petrograd.

Genus *Lankesteria* Mingazzini 1891

Trophozoites spatulate, cysts spher., spores ovoidal.

Lankesteria sp.

Swarzewsky (1910) Festschr. Geburtst. R. Hertwig 1: 635-74; (1911)

Arch. Protistenk., 22:236.

Intestinal par., encysted in parenchyme. Cysts spher. 200μ . Cyst walls dissolve and spores are carried to organs, set at liberty at death of host.

Hosts: *Planaria* sp. and *Sorocoelis* sp. (Plath.)

Lankesteria culicis

Stevenson and Wenyon Jour. Trop. Med. and Hyg., 18:196; Macfie (1917) Report of the Accra Lab. for 1916, London, pp. 67-75.

Host: *Stegomyia fasciata* larv. (Dipt.) Taken at Accra, Gold Coast, Africa.

Genus *Ancora* Labbé 1899

Anchor-shaped spor. two long lateral backwardly-directed prolongations from ant. end, body tapering to sharp point.

Ancora lutzii (?*A. sagittata* Leuckart Arch. Naturg., 26 (2):263)

Hasselmann (1918) Brazil-Medico, Aug. 10, 1918.

Host: *Capitella capitata* Fabr. (Ann.) Taken at Manguinhos, Rio de Janeiro, Brazil.

UNCERTAIN GENUS IN THE ACEPHALINAE

Genus *Rhytidocystis* Henneguy 1908

Trophozoite stage intracellular, encystment solitary, two sporozoites in spore.

Rhytidocystis henneguyi

deBeauchamp (1912) C. R. Acad. Sci. Par., 154:1384; (1913) Arch. Protistenk., 31:138.

Spor. ellipsoidal, encystment solitary. Nucl. spher. Spores $12 \times 7 \mu$, ovoidal, symmetrical. Epithelium and lumen of intest.

Host: *Ophelia neglecta*. (Polych.) Taken off Roscoff, France.

UNCERTAIN SPECIES IN THE ACEPHALINAE

Unnamed sp.

Guenther (1914) Zool. Anz., 44:264-7.

Host: *Ficalbia dofleini*. larv. (Dipt.) Taken on Island of Ceylon. Habitat: Tracheae and coelom.

Unnamed sp.

Pixell-Goodrich (1916) Q. J. Micr. Sci., 61:205-16.

Max. l. 1.6 mm., w. 1 mm. Coelomic and attached to body or intest. walls. Nucl. large, ovoidal.

Host: *Glycera siphonostoma*. (Echinod.) Taken at Naples.

Two other unnamed sp. found by same author, and in same host as last.

AN ANNOTATED LIST OF THE SPECIES IN THE SUBORDER SCHIZOGREGARINAE

Tribe 1. MONOSPORA Léger and Duboscq 1908

Family 1. OPHRYOCYSTIDAE Léger and Duboscq 1908

Tribe 2. POLYSPORA Léger and Duboscq 1908

Family 2. SCHIZOCYSTIDAE Léger and Duboscq 1908

Genus *Schizocystis* Léger 1900

Schizonts extracellular, vermiform, multinucleate. Gametes ovoidal, pointed at one end. Cysts subspher. or ovoidal, spores octozoic, biconical. *Schizocystis spinigeri*

Machado (1913) Mem. Inst. Oswaldo Cruz, Rio de Jan., 5:5-13.

Spor. slender, striated longitudinally, cysts ovoidal, spores ovoidal, pointed. Both sporogony and schizogony noted.

Host: *Spiniger* sp. (Hemipt.) Taken near Manguinhos, Rio de Janeiro, Brazil.

Family 3. SELENIDIIDAE Brazil 1907

Schizonts intracellular, multinucleate, at close of development. Gametocystes mobile, longitudinal myonemes. Parasitic in Polychaetes.

Genus *Selenidium* Giard 1884

Schizogony in the intracellular stage.

Selenidium cruzi

Faria, Cunha and Fonseca (1917) Brazil-Medico, 31:243; (1918) Mem. Osw. Cruz, 10:17.

Largest trophoz. $160\mu \times 25\mu$, vermiform, slightly flattened, ant. end blunt with small pointed epimerite. Nucl. ellipsoidal.

Host: *Polydora socialis*. (Polych.) Taken at Rio de Janeiro, Brazil.

Selenidium mechnikovi

Léger and Duboscq (1917) Ann. Inst. Past., 31:69.

Intestinal par. Intra- and extra-cellular, schizozoites pyriform, 5μ .

Sporonts cucumber-shaped, $30-34\mu$, longit. striated, nucl. sub-spher.

Host: *Glossobalanus minutus*. (Enteropneusta.) Taken at Sainte-Jeande-Luz, France.

Family 4. MEROGREGARINIDAE Porter 1908

Family 5. SPIROCYSTIDAE Léger and Duboscq 1915

Arch. Protistenk., 35:199-211. Mono-sporic and monozoic, schizogony and sporogony in same host.

Genus *Spirocystis* Léger and Duboscq

1911 Bull. Soc. zool. Fr., June, 1911.

Spirocystis nidula. Type species

Léger and Duboscq (1911) Bull. Soc. zool. Fr., June 1911; C. R. Soc. Biol., 76:296; Arch. Protistenk., 35:199.

Sporocyst ovoidal, 35μ long, rejected with excrement. Releases in its next host through a micropyle a single folded sporozoite 40μ long. Sporozoite gives rise to helix-shaped schizont found in somatic or visceralperitoneum. This becomes multinucleate of max. l. 35μ and gives rise to macro- and micro-gametes, the copulation of which produces the spore, found in the chloragogue cells.

Host: *Lumbricus variegatus*. (Oligoch.) Taken near Grenoble, France.

Tribe 3. OCTOSPOREA Keilin (1914) C. R. Soc. Biol., 76:768

With eight spores in the sporogonic cycle.

Family 6. CAULLERYELLIDAE Keilin (1914) C. R. Soc. Biol., 76:768.

Genus *Caulleryella* Keilin (1914) C. R. Soc. Biol., 76:768

Intestinal par. Schizogony extracellular, veg. nucleus gives rise to 16 merozoites. Each of the two sporonts in a cyst produces 8 gametes. These 16 conjugate by twos to form 8 spores which produce 8 sporozoites.

Caulleryella aphiochaetae. Type species

Keilin (1914) C. R. Soc. Biol., 76:768.

Veg. stage 22μ long, ovoidal, pointed at end, embedded in epithelium.

Nucl. divides four times, giving rise to 16 merozoites liberated and affix themselves to epithelium. Sporulation by twos with 16 gametes produced. Cysts and gametes spherical.

Host: *Aphiochaeta rufipes* larv. (Dipt.) Taken at Paris.

Caulleryella anophelis

Hesse (19?) C. R. Acad. Sci. Par., 166:569.

Spor. $35 \times 30\mu$, syzygy in twos, cysts spher. 24μ to 32μ . Spores sub-spher. $12.5 \times 11\mu$. Dehiscence of cyst in host intest.

Host: *Anopheles bifurcatus*. larv. (Dipt.) Taken in the Dauphine, France.

FAMILY OF UNCERTAIN POSITION

Family 7. POROSPORIDAE Léger and Duboscq 1908

1915 C. R. Soc. Biol., 75:95-8. Many sporozoites from a sporoblast. No sporocyst.

Genus *Porospora* Schneider 1875

Epim. minute, button-like, spor. septate, usually solitary.

Porospora légeri

deBeauchamp (1910) C. R. Acad. Sci. Par., 151:997-9.

Spor. associative prot. of primate depressed at apex, satellite longer with no prot. $750\mu \times 75\mu$. Cysts spher. from two sporonts. Intestinal par.

Host: *Eriphia spinifrons*. (Crust.) Taken at Saint-Jean-de-Luz, Fr.

(This species was omitted from Sokolow's List-1911.)

Porospora fortunidarum Léger and Duboscq 1911 (= *Aggregata* p. Frenzel)

(1911) Arch. zool. exper., (5) 6:lix-lxx; (1913) C. R. Acad. Sci. Par., 156:1932; (1913) C. R. Soc. Biol., 75:95.

Porospora pisae

Léger and Duboscq (1911) Ann. Univ. Grenoble, 23:403; Trégouboff (1916) Arch. zool. exper., 55:xxxv-xlvii.

1 mm. long, eel-shaped. Encystment from one or two spor.

Host: *Pisa gibosii*. (Crust.) Taken at Cette and Villefranche-sur-Mer, Fr.

Porospora maraisi

Léger and Duboscq (1912) Ann. Univ. Grenoble, 23:399.

Host: *Portunus depurator*. (Crust.)

Porospora nephropsis

Léger and Duboscq (1915) C. R. Soc. Biol., 75:368-71.

Spor. elongate, ellipsoidal, blunt at ends, max. l. 240μ , max. w. 44μ . Nucl. spher. Solitary vermiform enigmatic individuals 1300×36 also present. Cysts 160μ in diam. Schizogonic spores 5 in diam.

Host: *Nephrops norvegicus*. (Crust.)

The classification of this family is uncertain because the sporonts are apparently typical cephaline Eugregarinae yet a schizogonic cycle exists. Minchin (1912) says 'The classification of the future will probably be one which divides all gregarines into Cephalina and Acephalina and distributes the schizogregarines amongst these two divisions.'

GENUS OF UNCERTAIN POSITION

Genus *Selysina* Duboscq 1917 C. R. Acad. Sci., 164:?

Selysina perforans. Type species

Duboscq (1917) C. R. Acad. Sci., 164:? (1918) Arch. zool. exper., ?:1-53.

Host: *Stolonica socialis*. (Ascid.) Taken off Roscoff, France.

Unnamed gregarine

Strickland (1913) Jour. Morphol., 24:84.

Schizogonous. Pathogenic effect upon host. Inhabits various tissues.

Cysts spher. 250 μ .

Host: *Simulium bracteatum* larv. (Dipt.) Taken near Boston, Mass.

A species described as *Microtaeniella clymenellae* n.g., n. sp. from *Clymenella torquata* (Ann.) by Calkins (1915) Biol. Bull., 29:46 is regarded by the author as a colonial gregarine resembling the scolex and proglottids of the cestodes, each segment being nucleated. This polynucleate condition makes its inclusion in this group doubtful. Poche (Arch. Protistenk., 37:6) considers it identical with the genus *Haplozoon*.

LIST OF HOSTS WITH THEIR GREGARINE PARASITES

HOST	PARASITE
PLATYHELMINTHES	
<i>Geoplana backi</i>	<i>Rhynchocystis geoplanae</i> Fuhrman
<i>G. amagensis</i>	<i>Rhynchocystis geoplanae</i>
<i>Planaria</i> sp.	<i>Lankesteria</i> sp. Swarczewsky
<i>Polyporus sulphureus</i>	Gregarine form, Wellmer
<i>Sorocoelis</i> sp.	<i>Lankesteria</i> sp. Swarczewsky
ANNELIDA: Polychaeta	
<i>Capitella capitata</i>	<i>Ancora lutzi</i> Hasselmann
<i>Clymenella torquata</i>	<i>Microtaeniella clymenellae</i> Calkins
<i>Glycera siphonostoma</i>	<i>Gonospora glycerae</i> Pixell-Goodrich
<i>Glycera siphonostoma</i>	<i>Gonospora intestinalis</i> Pixell-Goodrich
<i>Glycera siphonostoma</i>	Three unnamed parasites Pixell-Goodrich
<i>Ophelia neglecta</i>	<i>Rhytidocystis henneguyi</i> deBeauchamp
<i>Pareudrilus pallidus</i>	<i>Monocystis pareudrili</i> Cognetti de Martiis
<i>Pareudrilus pallidus</i>	<i>Rhynchocystis hessei</i> Cognetti de Martiis
<i>Polydora ciliata</i>	<i>Polyrhabdina polydorae</i> Caullery and Mesnil
<i>Polydora socialis</i>	<i>Doliocystis</i> sp. Faria, Cunha and Fonseca
<i>Polydora socialis</i>	<i>Selenidium cruzi</i> Faria, Cunha and Fonseca
<i>Pygospionis seticornis</i>	<i>Polyrhabdina pygospionis</i> Caullery and Mesnil

HOST	PARASITE
<i>Rhinodrilus incertus</i>	<i>Monocystis thamnodrili</i> Cogn. de Martiis
<i>Scolecopsis fuliginosa</i>	<i>Polyrhabdina spionis</i> Caullery and Mesnil
<i>Spio martinensis</i>	<i>Polyrhabdina brasili</i> Caullery and Mesnil
ANNELIDA: Oligochaeta	
<i>Kynotus Pittarellii</i>	<i>Taeniocystis legeri</i> Cogn. de Martiis
<i>Lumbricus terrestris</i>	<i>Monocystis rostrata</i> Muslow
<i>Lumbricus terrestris</i>	<i>Monocystis catenata</i> Muslow
<i>Lumbricus variegatus</i>	<i>Spirocystis nidula</i> Léger and Duboscq
<i>Glossoscolex wiengreeni</i>	<i>Monocystis perforans</i> Pinto
ANNELIDA: Hirudinea	
<i>Glossopsonia complanata</i>	<i>Metamera schubergi</i> Duke
<i>Hemiclepsis marginata</i>	<i>Metamera schubergi</i> Duke
ROTIFERA	
<i>Euchlanis dilatata</i>	<i>Monocystis minima</i> Konsuloff
<i>Salpina mucronata</i>	<i>Monocystis minima</i> Konsuloff
ECHINODERMATA	
<i>Echinocardium cordatum</i>	<i>Lithocystis foliacea</i> Pixell-Goodrich
<i>Echinocardium cordatum</i>	<i>Urospora neapolitana</i> Pixell-Goodrich
<i>Echinocardium</i> sp.	<i>Urospora echinocardii</i> Pixell-Goodrich
<i>Spatangus</i> sp.	<i>Urospora echinocardii</i> Pixell-Goodrich
<i>Synapta purpureus</i>	<i>Lithocystis microspora</i> Pixell-Goodrich
<i>Synapta galliennei</i>	<i>Urospora synaptiae</i> Cuénot
<i>Synapta digitata</i>	<i>Gonospora mercieri</i> Cuénot
MOLLUSCA	
<i>Cerithium vulgatum</i>	<i>Gonospora testiculi</i> Trégouboff
CRUSTACEA	
<i>Ampelisca spinipes</i>	<i>Cephaloidophora ampeliscæ</i> Kamm
<i>Anaspides tasmaniae</i>	<i>Ganymedes anaspides</i> Huxley
<i>Atyaephyra Desmaresti</i>	<i>Uradiophora cuenoti</i> Mercier
<i>Balanus amphitrite</i>	<i>Pyxinoides balani</i> Trégouboff
<i>Balanus eburneus</i>	<i>Pyxinoides balani</i> Trégouboff
<i>Balanus eburneus</i>	Unnamed parasite, Buddington
<i>Eriphia spinifrons</i>	<i>Porospora légeri</i> deBeauchamp
<i>Gammarus marinus</i>	<i>Cephaloidophora maculata</i> Léger and Duboscq
<i>Libinia dubia</i>	<i>Cephaloidophora olivia</i> Kamm
<i>Nephrops norvegicus</i>	<i>Porospora nephropsis</i> Léger and Duboscq
<i>Portunus depurator</i>	<i>Porospora maraisi</i> Léger and Duboscq
<i>Pisa gibosii</i>	<i>Porospora pisae</i> Léger and Duboscq
<i>Talitrus saltator</i>	<i>Cephaloidophora talitri</i> Mercier
<i>Talorchestia longicornis</i>	<i>Cephaloidophora delphinia</i> Kamm
<i>Uca pugnax</i>	<i>Cephaloidophora nigrofusca</i> Kamm
<i>Uca pugilator</i>	
CHILOPODA	
<i>Scolopendra heros</i>	<i>Amphorocephalus amphorellus</i> Ellis
<i>Scolopendra subspinipes</i>	<i>Nina indicia</i> Merton
<i>Scolopendra</i> sp.	<i>Echinomera magalhãesil</i> Kamm
<i>Scolopendra</i> sp.	<i>Seticephalus elegans</i> Kamm
<i>Scolopendra</i> sp.	<i>Gregarina brasiliensis</i> Pinto
<i>Scolopendrella</i> sp.	Gregarine form, Wellmer

HOST	PARASITE
DIPLOPODA	
<i>Callipus lactarius</i>	<i>Stenophora lactaria</i> Watson
<i>Euryurus erythropygus</i>	<i>Stenophora diplocorpa</i> Watson
<i>Fontaneria coarctata</i>	<i>Stenophora caudata</i> Watson
<i>Orthomorpha coarctata</i>	<i>Stenophora elongata</i> Ellis
<i>Orthomorpha gracilis</i>	<i>Stenophora robusta</i> Ellis
<i>Orthomorpha</i> sp.	<i>Stenophora robusta</i> Ellis
<i>Orthomorpha</i> sp.	<i>Fonsecaia polymorpha</i> Pinto
<i>Parajulus impressus</i>	<i>Stenophora impressa</i> Watson
<i>Parajulus venustus</i>	<i>Stenophora robusta</i> Ellis
<i>Parajulus</i> sp.	<i>Stenophora cockerellae</i> Ellis
<i>Rhinocricus pugio</i>	<i>Stenophora cunhai</i> Pinto
<i>Rhinocricus</i> sp.	<i>Stenophora lutzi</i> Pinto
<i>Rhinocricus</i> sp.	<i>Stenophora cruzi</i> Pinto
<i>Rhinocricus</i> sp.	<i>Stenophora viannai</i> Pinto
<i>Rhinocricus</i> sp.	<i>Stenophora umbilicata</i> Pinto
<i>Rhinocricus</i> sp.	<i>Stenophora tenuicollis</i> Pinto
THYSANURA	
<i>Sminthurus fuscus</i>	Gregarine form, Wellmer
ORTHOPTERA	
<i>Ceuthophilus latens</i>	<i>Gregarina longiducta</i> Ellis
<i>Ceuthophilus maculatus</i>	<i>Gregarina longiducta</i> Ellis
<i>Ceuthophilus neglectus</i>	<i>Gregarina neglecta</i> Watson
<i>Ceuthophilus stygius</i>	<i>Gregarina stygia</i> Watson
<i>Ceuthophilus valgus</i>	<i>Gregarina consobrina</i> Ellis
<i>Conocephalus frater</i>	<i>Gregarina chagasi</i> Pinto
<i>Encoptolophus sordidus</i>	<i>Gregarina nigra</i> Watson
<i>Forficularia auricularia</i>	Gregarine form, Pantel
<i>Gryllus abbreviatus</i>	<i>Gregarina galliveri</i> Watson
<i>Ischnoptera pennsylvanicus</i>	<i>Gregarina illinensis</i> Watson
<i>Melanoplus differentialis</i>	<i>Gregarina nigra</i> Watson
<i>Melanoplus femur-rubrum</i>	<i>Gregarina nigra</i> Watson
<i>Udeopsyllae nigra</i>	<i>Gregarina udeopsyllae</i> Watson
HEMIPTERA	
<i>Spiniger</i> sp.	<i>Schizocystis spiniger</i> Machado
NEUROPTERA	
<i>Aeschnidae</i> lv.	<i>Bothriopsis claviformis</i> Pinto
<i>Aeschna</i> sp.	<i>Actinocephalus brachydactylus</i> Ellis
<i>Phryganea grandis</i>	<i>Diplocystis phryganeae</i> Berg-von-Emme
<i>Sympetrum rubicundulum</i>	<i>Prismatospora evansi</i> Ellis
<i>Tramea lacerata</i>	<i>Prismatospora evansi</i> Ellis
DIPTERA	
<i>Anopheles bifurcatus</i> lv.	<i>Caulleryella anophelis</i> Hesse
<i>Aphiochaeta rufipes</i> lv.	<i>Caulleryella aphiochaetae</i> Keilin
<i>Ceratophyllus fasciatus</i>	<i>Agrippina bona</i> Strickland
<i>Ceratophyllus farreni</i>	<i>Steinina rotundata</i> Ashworth and Rettie
<i>Ceratophyllus fringillae</i> lv.	<i>Actinocephalus parvus</i> Wellmer
<i>Ceratophyllus gallinae</i> lv.	<i>Actinocephalus parvus</i> Wellmer
<i>Ceratophyllus gallinae</i> ad.	<i>Steinina rotundata</i> Ashworth and Rettie
<i>Ceratophyllus styx</i>	<i>Steinina rotundata</i> Ashworth and Rettie

HOST	PARASITE
<i>Ficalbia dosfeini</i> lv.	Unnamed par. Guenther
<i>Simulium bracteatum</i> lv.	Unnamed par. Strickland
<i>Stegomyia fasciata</i> lv.	<i>Lankesteria culicis</i> Stevenson and Wenyon
COLEOPTERA	
<i>Alobates pennsylvanicus</i>	<i>Actinocephalus zophus</i> Ellis
<i>Amara angustata</i>	<i>Steinina rotunda</i> Watson
<i>Asida opaca</i>	<i>Stylocephalus giganteus</i> Ellis
<i>Asida</i> sp.	<i>Stylocephalus giganteus</i> Ellis
<i>Broscus cephalotes</i>	<i>Gregarina erecta</i> Wellmer
<i>Carabus</i> sp.	<i>Cometoides</i> sp. Wellmer
<i>Clerid</i> lv.	<i>Bulbocephalus wardi</i> Watson
<i>Coccinella</i> sp.	<i>Gregarina fragilis</i> Watson
<i>Coccinella</i> sp.	<i>Gregarina katherina</i> Watson
<i>Coccinella novemnotata</i>	<i>Gregarina katherina</i> Watson
<i>Coptotomus interrogatus</i>	<i>Gregarina globosa</i> Watson
<i>Coptotomus interrogatus</i>	<i>Gregarina coptotomi</i> Watson
<i>Crypticus quisquilius</i>	<i>Gregarina ovoidea</i> Wellmer
<i>Cucujus</i> lv.	<i>Bulbocephalus elongatus</i> Watson
<i>Cychnus rostratus</i>	Gregarine form, Wellmer
<i>Dermestes lardarius</i>	<i>Pyxinia bulbifera</i> Watson
<i>Diabrotica vittata</i>	<i>Gregarina diabrotica</i> Kamm
<i>Elateridae</i> lv.	<i>Gregarina gracilis</i> Watson
<i>Eleodes</i> sp.	<i>Stylocephalus giganteus</i> Ellis
<i>Eusattus</i> sp.	<i>Stylocephalus giganteus</i> Ellis
<i>Harpalus aeneus</i>	<i>Gregarina polyaulia</i> Wellmer
<i>Harpalus pennsylvanicus</i>	<i>Actinocephalus gimbeli</i> Watson
<i>Harpalus pennsylvanicus erythropus</i>	<i>Hirmocustis harpali</i> Watson
<i>Harpalus pennsylvanicus longior</i>	<i>Steinina harpali</i> Watson
<i>Harpalus ruficornis</i>	<i>Gregarina polyaulia</i> Wellmer
<i>Heledona agricola</i>	Gregarine form, Wellmer
<i>Helophorus aquaticus</i>	<i>Monocystis</i> sp. Wellmer
<i>Hydrophilus aterrimus</i> lv.	<i>Cometoides</i> -like form, Wellmer
<i>Hydrophilus</i> sp.	<i>Bothriopsis terpsichorella</i> Ellis
<i>Hyllobius abictis</i>	<i>Gregarina hyllobii</i> Kamm
<i>Ips typographus</i>	<i>Gregarina typographi</i> Fuchs
<i>Lagria hirta</i>	<i>Gregarina rostrata</i> Wellmer
<i>Leptochirus edax</i>	<i>Actinocephalus crassus</i> Ellis
<i>Leptochirus edax</i>	<i>Stylocystis ensiferus</i> Ellis
<i>Ninus interstitialis</i>	<i>Gregarina guatemalensis</i> Ellis
<i>Nyctotheres barbarata</i>	<i>Actinocephalus zophus</i> Ellis
<i>Omoطلا normalis</i>	<i>Gregarina watsoni</i> Pinto
<i>Platydemia excavatum</i>	<i>Gregarina platydema</i> Kamm
<i>Platynus ruficollis</i>	<i>Gregarina platyni</i> Watson
<i>Procrustes coriaceus</i>	<i>Actinocephalus permagnus</i> Wellmer
<i>Pterostichus niger</i>	<i>Gregarina exiguus</i> Kamm
<i>Pterostichus niger</i>	<i>Actinocephalus echinatus</i> Wellmer
<i>Systema</i> sp.	<i>Gregarina aragaoi</i> Pinto
<i>Pterostichus stygicus</i>	<i>Gregarina monarchia</i> Watson
<i>Pterostichus stygicus</i>	<i>Gregarina intestinalis</i> Watson
<i>Pterostichus vulgaris</i>	<i>Actinocephalus echinatus</i> Wellmer

HOST	PARASITE
<i>Tenebrio castaneus</i>	<i>Gregarina grisea</i> Ellis
<i>Tenebrionidae</i> lv.	<i>Gregarina tenebrionella</i> Watson
<i>Tribolium ferrugineum</i>	<i>Gregarina minuta</i> Ishii
<i>Tribolium ferrugineum</i>	<i>Gregarina crassa</i> Watson
<i>Tribolium ferrugineum</i>	<i>Disymophyes minuta</i> Kamm
<i>Tribolium ferrugineum</i>	<i>Steinina obconica</i> Ishii
<i>Tritoma quadripustulata</i>	Gregarine form, Wellmer
LEPIDOPTERA	
<i>Endrosis fenestrella</i> lv.	<i>Leidyana tinei</i> Keilin
<i>Oecophora pseudopretella</i> Stain	Unnamed greg.
<i>Tinea pallescentella</i> Stain	Unnamed greg.
ARACHNIDA	
<i>Ctenocephalus serraticeps</i>	<i>Gregarina ctenocaphalus</i> Ross
<i>Oribata geniculata</i>	<i>Gregarina</i> sp. Wellmer
TUNICATA	
<i>Stolonica socialis</i>	<i>Selysina perforans</i> Duboscq
ENTEROPNEUSTA	
<i>Glossobalanus minutus</i>	<i>Selenidium metchnikovi</i> Léger and Duboscq